Statement of Verification

BREG EN EPD No.: 000345 Issue 03

This is to verify that the

Environmental Product Declaration

provided by:

Brett Martin Daylight Systems

BRE Global Verified EPD

is in accordance with the requirements of:

EN 15804:2012+A1:2013

and

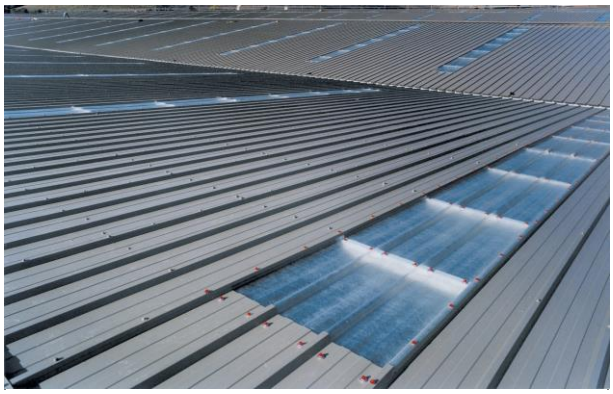
BRE Global Scheme Document SD207

This declaration is for:

Trilite Energysaver Factory Assembled Insulated Rooflights

Company Address

Sandford Close
Dutton Road
Alderman's Green Industrial Estate
Coventry
CV2 2QU



Brett Martin

Signed for BRE Global Ltd	Emma Baker Operator	05 October 2023 Date of this Issue
30 November 2020 Date of First Issue		29 November 2025 Expiry Date

BRE Global Verified EPD

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ECO PLATFORM EPD VERIFIED

Environmental Product Declaration

EPD Number: 000345

General Information

EPD Programme Operator	Applicable Product Category Rules
BRE Global Watford, Herts WD25 9XX United Kingdom	BRE Environmental Profiles 2013 Product Category Rules for Type III environmental product declaration of construction products to EN 15804:2012+A1:2013
Commissioner of LCA study	**LCA consultant/Tool**
Brett Martin Daylight Systems Sandford Close, Dutton Road, Alderman's Green Industrial Estate, Coventry CV2 2QU	BRE LINA
Declared/Functional Unit	**Applicability/Coverage**
1m^2 of triple skin Factory Assembled Insulating rooflight with Trilite outer sheet thermal insulator and Trilite liner sheet, weighing 5.01kg/m^2	Product Average.
EPD Type	**Background database**
Cradle to Gate with options	Ecoinvent v3.2 & BRE LINA database V2.0.62

Demonstration of Verification
CEN standard EN 15804 serves as the core PCR [a]
Independent verification of the declaration and data according to EN ISO 14025:2010 ☐Internal ☒ External
(Where appropriate [b])Third party verifier: Pat Hermon

a: Product category rules
b: Optional for business-to-business communication; mandatory for business-to-consumer communication (see EN ISO 14025:2010, 9.4)

Comparability
Environmental product declarations from different programmes may not be comparable if not compliant with EN 15804:2012+A1:2013. Comparability is further dependent on the specific product category rules, system boundaries and allocations, and background data sources. See Clause 5.3 of EN 15804:2012+A1:2013 for further guidance

Information modules covered

Product			Construction		Use stage							End-of-life					Benefits and loads beyond the system boundary
					Related to the building fabric					Related to the building							
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4		D
Raw materials supply	Transport	Manufacturing	Transport to site	Construction – Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal		Reuse, Recovery and/or Recycling potential
☑	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		☐

Note: Ticks indicate the Information Modules declared.

Manufacturing site(s)

Brett Martin Daylight Systems
Sandford Close, Dutton Road,
Alderman's Green Industrial Estate,
Coventry
CV2 2QU

Construction Product:

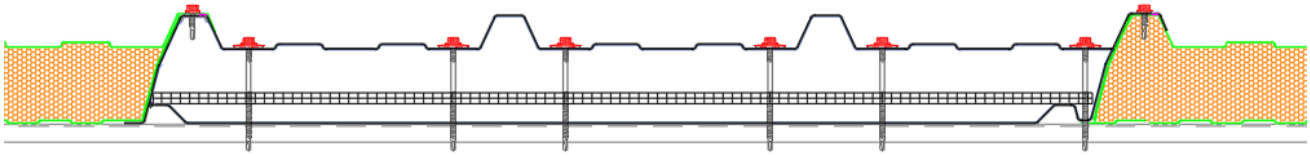
Product Description

Energysaver composite panel rooflights provide quality natural daylight in buildings constructed with composite roofing panels. The triple skin rooflight, has a U-value well exceeding the thermal requirements of Part L of the Building Regulations. With full BBA certification these innovative rooflights offer unique features as standard and have been Tried, Tested and Trusted to deliver quick and easy installation, optimum performance and long-life reliability and reassurance. Energysaver composite panel rooflights are typically of 1000mm width.

Technical Information

Property	Value, Unit
Harmonised Technical Specification EN 1013:2012 + A1:2014	N.B. NPD = No performance declared
Sheet weight	Up to 3.0 kg/m^2
External fire performance (EN13501 part 5)	B_{ROOF}(t4)
Reaction to fire	NPD - UK fire ratings declared separately
Water / Air permeability	Pass
U-value	1.3 – 1.9 W/m^{2}K
Light Transmission	55 - 64%
G-Value	0.51 - 0.59
Large soft body impact resistance (assembly)	NPD. Performance to ACR(M)001 declared separately in accordance with NARM NTD03

Property	Value, Unit
Dimensional tolerances	Pass
All other properties	NPD



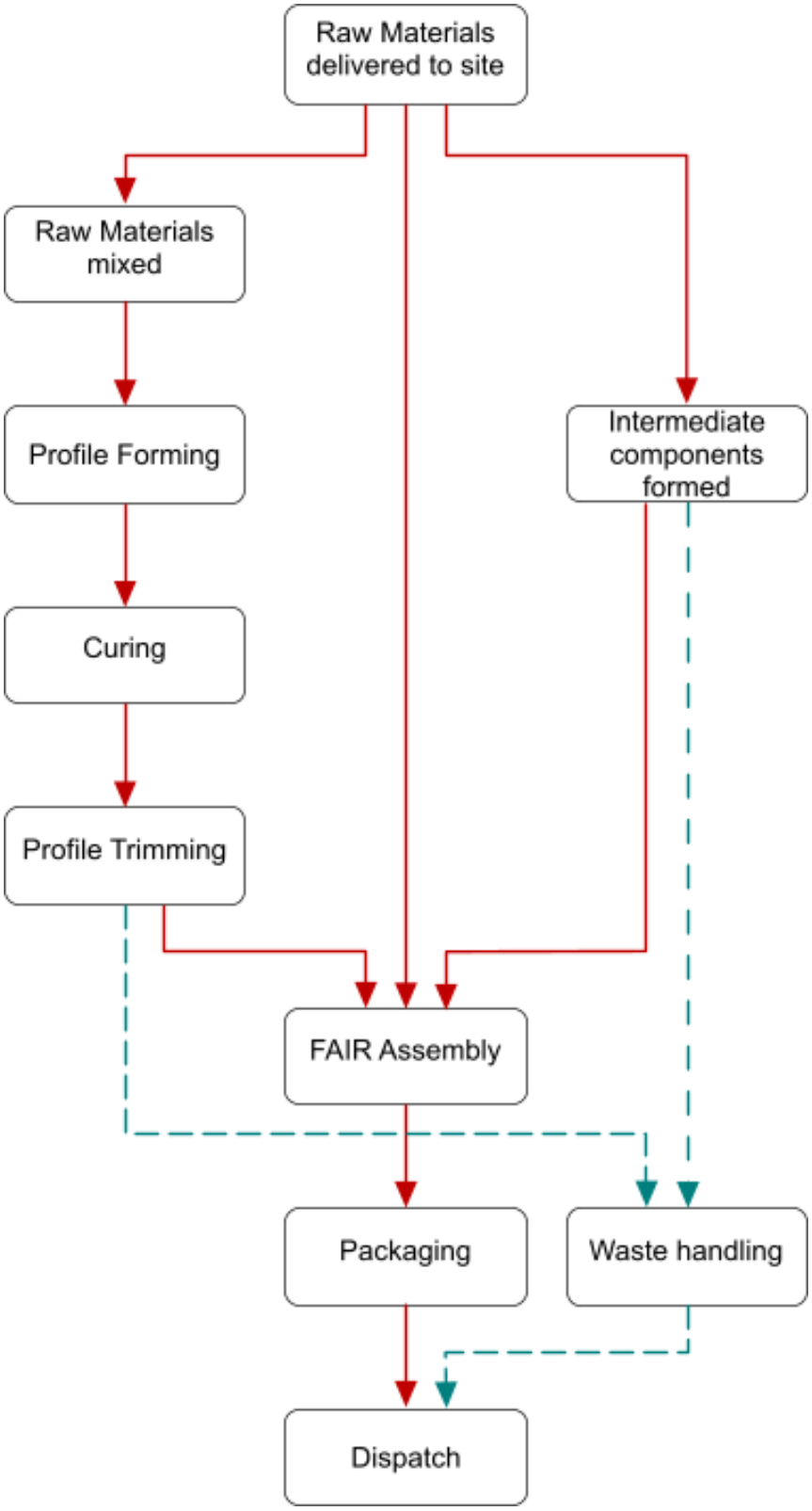
Main Product Contents

Material/Chemical Input	%
GRP Resin	50
Glass fibre	28
Minor Chemicals	3
Film	1
Thermal interlayer	5
Foam Fillers	5
Steel strip	3
Sealants & Adhesives	5

Manufacturing Process

The Polyester resin and minor chemicals are mixed and deposited on a carrier film. Glass rovings are spread on top and then it is sandwiched flat by another film. The flat uncured sheet is then formed to the desired profile and passed through an oven to cure. The edges of the sheet are then trimmed and sheets cut to length. The Sheets are then bonded together to form a Factory Assemble Insulated Rooflight (FAIR).

Process flow diagram



Construction Installation

MAIN FASTENERS
Stainless steel 5.5mm diameter fasteners fitted with a large diameter (29/32mm) washer with soft (40 shore hardness) bonded seal, typically poppy red colour. Do not over tighten fixings. Do not use light weight washers. There should be at least five main fixings per purlin, fitted in the trough, max 250mm apart. For profiles where pitch between corrugations is over 200mm, there should be two fixings per trough, with the fixings located either side of each main corrugation.

SIDE STITCH FASTENER - ROOFLIGHT UNDERLAP
UnderlapStripTM (ULS) is bonded into the underlapping sidelap: a single continuous length profiled to match the corrugation to give added rigidity and ensure standard stitching screws can be reliably secured. This reduces the cost of fasteners and the number of fastener types on site, and improves ease of installation. Standard stainless steel stitching screws should then be fitted at 300mm to 400mm centres, typically poppy red colour. (Note: stitching screws should be evenly spaced about any FAIR endlap and not fixed through the joint).

SIDE STITCH FASTENER - ROOFLIGHT OVERLAP
Side stitch at 300mm to 400mm centres using standard stainless steel stitching screws, typically poppy red colour. (Note: stitching screws should be evenly spaced about any FAIR endlap and not fixed through the joint

SIDELAP SEALANT
Single strip of 6x5mm UV stable pale coloured cross linked butyl mastic (BMDS:GCA) - positioned on the crown of the sheet just outside the line of sidelap fasteners. At endlaps, the sidelap sealant must be positioned between every sheet.

ENDLAP SEALANT
All endlaps should be sealed with 2 rows of 6x5mm section, UV stable, pale coloured cross linked butyl mastic (BMDS:GCA). These should be positioned above and below the line of fixing, no more than 25mm from the line of fasteners. If a seal is required at the tail of the lap, gun applied silicon (ISO11600-F-25LM) should be used.

Use Information

Maintenance involves cleaning and inspection after one year, then subsequently at an appropriate frequency (depending on results of previous inspections and environmental conditions), typically 2-3 years but more frequently if necessary, and never exceeding 5 years.

The general condition of GRP rooflights, and the security of fasteners and sealants should be checked periodically as part of the overall maintenance program for the structure into which they are incorporated. If a rooflight is found to be damaged it must be replaced in accordance with the original specification.

End of Life

It is assumed that the end of life the FAIR, Fixings and sealants will be disposed of via landfill, as this is the worst case outcome.

Life Cycle Assessment Calculation Rules

Declared / Functional unit description

1m^2 of triple skin Factory Assembled Insulating rooflight with Trilite outer sheet, thermal insulator and Trilite liner sheet, weighing 5.01kg/m^2.

System boundary

This is a cradle to gate with options EPD (i.e. processes covered in the extraction and processing in modules A1 to A3), the construction stage in modules A4 and A5 and end of life scenario in module C4.

Data sources, quality and allocation

Manufacture-specific data from Brett Martin Daylight Systems covering a production period of 1 year [01/01/2019 to 31/12/2019] from the Coventry site has been used for this EPD.

BMDS offer a range of rooflights, all manufactured at the Coventry site. For inputs where there is no alternative way to scale data, sales data for 2019 has been used to ascertain total usage for GRP production.

Once the total value (of energy or water) for the manufacture of GRP is known, then it has been scaled by production output of GRP linear metres. The GRP sheets are used as the Outer and Tray of the factory assembled rooflights.

The GRP sheets are then assembly in the FAIRs department. Materials have been scaled by production output in linear meters of FAIRs.

As BMDS run a large site, it is difficult to apportion waste correctly to the different manufacturing cells and therefore it is difficult to scale the waste correctly. The production waste element has been taken from the scrap allowances in the order processing system, which is based on historical material usage

Cut-off criteria

Data collected at the Coventry manufacturing site was used. The inventory process in this LCA includes all data related to raw material, packaging material and consumable items, and the associated transport to the manufacturing site. Process energy and water use and direct production waste are included. Environmental impacts due to administration of the manufacturing process are assumed to be below cut off criteria.

LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts									
			GWP	ODP	AP	EP	POCP	ADPE	ADPF
			kg CO_2 equiv.	kg CFC 11 equiv.	kg SO_2 equiv.	kg $(PO_4)^{3-}$ equiv.	kg C_2H_4 equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	3.10E+01	2.94E-06	1.27E-01	4.89E-02	2.15E-02	6.58E-04	4.72E+02
Construction process stage	Transport	A4	8.67E-02	1.65E-08	2.98E-04	7.84E-05	6.15E-05	1.45E-07	1.35E+00
	Construction	A5	1.18E+00	2.31E-07	6.53E-03	2.35E-03	7.56E-04	2.37E-05	1.59E+01
Use stage	Use	B1	MND	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND	MND
End of life	Deconstruction, demolition	C1	MND	MND	MND	MND	MND	MND	MND
	Transport	C2	MND	MND	MND	MND	MND	MND	MND
	Waste processing	C3	MND	MND	MND	MND	MND	MND	MND
	Disposal	C4	5.11E-01	1.46E-08	4.24E-04	3.73E-02	1.50E-04	8.17E-08	1.33E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	MND	MND	MND	MND

GWP = Global Warming Potential;
ODP = Ozone Depletion Potential;
AP = Acidification Potential for Soil and Water;
EP = Eutrophication Potential;
POCP = Formation potential of tropospheric Ozone;
ADPE = Abiotic Depletion Potential – Elements;
ADPF = Abiotic Depletion Potential – Fossil Fuels;

LCA Results (continued)

Parameters describing resource use, primary energy								
			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	2.25E+01	6.61E-03	2.25E+01	3.90E+02	1.08E+02	4.98E+02
Construction process stage	Transport	A4	2.05E-02	5.10E-08	2.05E-02	1.34E+00	0.00E+00	1.34E+00
	Construction	A5	2.62E+00	4.49E-06	2.62E+00	1.70E+01	0.00E+00	1.70E+01
Use stage	Use	B1	MND	MND	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND	MND	MND
End of life	Deconstruction, demolition	C1	MND	MND	MND	MND	MND	MND
	Transport	C2	MND	MND	MND	MND	MND	MND
	Waste processing	C3	MND	MND	MND	MND	MND	MND
	Disposal	C4	4.96E-02	1.29E-07	4.96E-02	1.37E+00	0.00E+00	1.37E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	MND	MND	MND

PERE = Use of renewable primary energy excluding renewable primary energy used as raw materials;
PERM = Use of renewable primary energy resources used as raw materials;
PERT = Total use of renewable primary energy resources;
PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
PENRM = Use of non-renewable primary energy resources used as raw materials;
PENRT = Total use of non-renewable primary energy resource

LCA Results (continued)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m^3
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	5.16E-01
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	3.14E-04
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	2.12E-02
Use stage	Use	B1	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND
End of life	Deconstruction, demolition	C1	MND	MND	MND	MND
	Transport	C2	MND	MND	MND	MND
	Waste processing	C3	MND	MND	MND	MND
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	1.52E-03
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	MND

SM = Use of secondary material;
RSF = Use of renewable secondary fuels;
NRSF = Use of non-renewable secondary fuels;
FW = Net use of fresh water

LCA Results (continued)

Other environmental information describing waste categories					
			HWD	NHWD	RWD
			kg	kg	kg
Product stage	Raw material supply	A1	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG
	Total (of product stage)	A1-3	5.09E-01	1.92E+00	9.30E-04
Construction process stage	Transport	A4	5.08E-04	1.15E-01	9.38E-06
	Construction	A5	6.56E-01	2.44E-01	3.72E-05
Use stage	Use	B1	MND	MND	MND
	Maintenance	B2	MND	MND	MND
	Repair	B3	MND	MND	MND
	Replacement	B4	MND	MND	MND
	Refurbishment	B5	MND	MND	MND
	Operational energy use	B6	MND	MND	MND
	Operational water use	B7	MND	MND	MND
End of life	Deconstruction, demolition	C1	MND	MND	MND
	Transport	C2	MND	MND	MND
	Waste processing	C3	MND	MND	MND
	Disposal	C4	1.03E-03	5.24E+00	8.76E-06
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND

HWD = Hazardous waste disposed;
NHWD = Non-hazardous waste disposed;
RWD = Radioactive waste disposed

LCA Results (continued)

Other environmental information describing output flows – at end of life						
			CRU	MFR	MER	EE
			kg	kg	kg	MJ per energy carrier
Product stage	Raw material supply	A1	AGG	AGG	AGG	AGG
	Transport	A2	AGG	AGG	AGG	AGG
	Manufacturing	A3	AGG	AGG	AGG	AGG
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Construction process stage	Transport	A4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Construction	A5	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use stage	Use	B1	MND	MND	MND	MND
	Maintenance	B2	MND	MND	MND	MND
	Repair	B3	MND	MND	MND	MND
	Replacement	B4	MND	MND	MND	MND
	Refurbishment	B5	MND	MND	MND	MND
	Operational energy use	B6	MND	MND	MND	MND
	Operational water use	B7	MND	MND	MND	MND
End of life	Deconstruction, demolition	C1	MND	MND	MND	MND
	Transport	C2	MND	MND	MND	MND
	Waste processing	C3	MND	MND	MND	MND
	Disposal	C4	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Potential benefits and loads beyond the system boundaries	Reuse, recovery, recycling potential	D	MND	MND	MND	MND

CRU = Components for reuse;
MFR = Materials for recycling

MER = Materials for energy recovery;
EE = Exported Energy

Scenarios and additional technical information

Scenarios and additional technical information			
Scenario	Parameter	Units	Results
A4 – Transport to the building site	Weighted average site distance was found to be 95km from Brett Martin's factory in Coventry. Delivery is by Brett Martin's fleet of delivery lorries. An empty return journey is also included, to make the total distance 190km		
	Vehicle type:	Tonnes	>32
	Distance:	km	190
A5 – Installation in the building	This scenario assumes the following energy and packaging waste are associated with the products installation on site. The scenario assumes no installation waste of the rooflight as the product is cut to the correct length in the factory and requires no on site modification.		
	Packaging waste – Shrink wrap	kg per F.U.	0.048
	Packaging waste – Cardboard	Kg per F.U.	0.265
	Packaging waster – Expanded polystyrene	k.g. per F.U.	0.014
	Diesel for crane	kJ per F.U.	1.296
	Electricity for drill battery	kJ per F.U.	2.800
	Stainless Steel Screws	kg per F.U.	0.120
	Sealant	Kg per F.U.	0.095
	Transport of Ancillary materials to site	Road transport - Van	30km
C1 to C4 End of life,	Although there are recycling and energy reclamation options at end of life, the worst case situation is considered. Disposal of GRP rooflight and polycarbonate intermediate layer is assumed to be to landfill.		
	GRP rooflight & polycarbonate intermediate layer to landfill	Kg per F.U.	5.01
	Fixings disposal at end of life	Kg per F.U	0.12
	Sealant disposal at end of life	Kg per F.U.	0.095

References

BSI. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products. BS EN 15804:2012+A1:2013. London, BSI, 2013.

BSI. Environmental labels and declarations – Type III Environmental declarations – Principles and procedures. BS EN ISO 14025:2010 (exactly identical to ISO 14025:2006). London, BSI, 2010.

BSI. Environmental management – Life cycle assessment – Principles and framework. BS EN ISO 14040:2006. London, BSI, 2006.

BSI. Environmental management – Life cycle assessment – requirements and guidelines. BS EN ISO 14044:2006. London, BSI, 2006.